Title (en)

Virtual bass synthesis using harmonic transposition

Title (de)

Virtuelle Basssynthese mit harmonischer Transposition

Title (fr)

Synthèse virtuelle de graves à l'aide de transposition harmonique

Publication

EP 2720477 A1 20140416 (EN)

Application

EP 13188415 A 20131014

Priority

US 201213652023 A 20121015

Abstract (en)

In some embodiments, a virtual bass generation method including steps of: performing harmonic transposition on low frequency components of an input audio signal (typically, bass frequency components expected to be inaudible during playback of the input audio signal using an expected speaker or speaker set) to generate transposed data indicative of harmonics (which are expected to be audible during playback, using the expected speaker(s), of an enhanced version of the input audio which includes the harmonics); generating an enhancement signal in response to the transposed data; and generating an enhanced audio signal by combining (e.g., mixing) the enhancement signal with the input audio signal. Other aspects are systems (e.g., programmed processors) and devices (e.g., devices having physically-limited bass reproduction capabilities, such as, for example, a notebook, tablet, mobile phone, or other device with small speakers) configured to perform any embodiment of the method.

IPC 8 full level

H04R 3/04 (2006.01); **G10L 21/02** (2013.01); **G10L 21/038** (2013.01)

CPC (source: EP)

G10L 21/038 (2013.01); **H04R 3/04** (2013.01); H04R 2430/03 (2013.01)

Citation (applicant)

US 7242710 B2 20070710 - EKSTRAND PER [SE]

Citation (search report)

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Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2720477 A1 20140416; **EP 2720477 B1 20160302**; CN 104704855 A 20150610; CN 104704855 B 20160824; EP 2907324 A1 20150819; EP 2907324 B1 20161109; JP 2015531575 A 20151102; JP 5894347 B2 20160330; WO 2014060204 A1 20140424

DOCDB simple family (application)

EP 13188415 A 20131014; CN 201380053450 A 20130927; EP 13771123 A 20130927; EP 2013070262 W 20130927; JP 2015536058 A 20130927